IN THE CLAIMS

Complete listing of the claims:

1. (Currently amended) A thin film forming apparatus comprising:

a first electrode having a first discharge surface and a second electrode having a second discharge surface, the first discharge surface facing opposite to the second discharge surface to form a discharge space;

a gas supply unit for supplying a gas including a thin film formation gas to the discharge space;

a power source for discharging and activating the gas by applying a high frequency electric field across the discharge space; and

a film transporting mechanism for transporting a protecting film for preventing ~~at least one of~~ the first electrode ~~and~~ or the second electrode from being exposed to the activated gas,

wherein a thin film is formed by exposing a substrate to the activated gas and,

the protecting film is transported in contact with ~~at least one of~~ the first discharge surface and a surface, which is a part of the first electrode and continues to the first discharge surface, or with the second discharge surface and ~~with at least a part of~~ a surface ~~other than the discharge surface~~ which is a part of the second electrode and continues to the second discharge surface.

2. (Currently amended) The thin film forming apparatus of claim 1, wherein the film transporting mechanism transports the protecting ~~film,~~film in contact with the discharge surface of the second electrode and with ~~at least a part of~~ the surface ~~other than the discharge surface~~, which is a part of the second electrode and continues to the second discharge surface.

3. (Original) The thin film forming apparatus of claim 1, wherein the first electrode and the second electrode generate the high frequency electric field in the discharge space under an atmospheric pressure or a pressure near to the atmospheric pressure.

4. (Original) The thin film forming apparatus of claim 2, wherein a heating equipment for heating the protecting film is provided on an upper stream side in a transportation direction of the protecting film with respect to the discharge surface of the second electrode.

5. (Original) The thin film forming apparatus of claim 4, wherein the heating equipment

heats the protecting film stepwise or continuously until the protecting film reaches the discharge surface.

6. (Original) The thin film forming apparatus of claim 2, further comprising a substrate transporting mechanism for transporting the substrate in contact with the discharge surface of the first electrode.

7. (Currently amended) The thin film forming apparatus of claim 6, wherein the substrate transporting mechanism transports the substrate in a state in which the substrate contacts the first discharge surface of the first electrode, after the substrate transporting mechanism makes the substrate contact ~~the surface other than the discharge surface~~, which is a part of the first electrode and continues to the first discharge surface of the first electrode.

8. (Currently amended) The thin film forming apparatus of claim 2, wherein a continuous corner part between the discharge surface of the second electrode and the surface, which is a part of the second electrode and is other than the second discharge surface, is shaped in an arc.

9. (Original) The thin film forming apparatus of claim 2, wherein the discharge surface of the second electrode is formed to be a curved surface convex toward the discharge surface of the first electrode.

10. (Original) The thin film forming apparatus of claim 2,

wherein the second electrode is formed of a plurality of small electrodes; and

the film transporting mechanism is provided to each of the small electrodes.

11. (Original) The thin film forming apparatus of claim 10,

wherein the small electrodes are fixed; and

the film transporting mechanisms transport the protecting films while rubbing the protecting films against the surfaces of the small electrodes.

12. (Withdrawn) The thin film forming apparatus of claim 10,

wherein the small electrodes are roller electrodes; and

the roller electrodes rotate according to the transportation of the protecting films by the film transporting mechanisms.

13. (Withdrawn) The thin film forming apparatus of claim 10,

wherein the first electrode is a roller electrode; and

the plurality of the small electrodes is rod electrodes disposed to be opposed to the peripheral surface of the roller electrode.

14. (Original) The thin film forming apparatus of claim 10,

wherein the gas supply unit is disposed so as to supply the gas to the discharge space through a flow path formed as an interval between a first small electrode among the plurality of the small electrodes and a second small electrode adjoining to the first small electrode; and

the film transporting mechanisms of each of the first small electrode and the second small electrode transports the protecting films, in contact with a surface of one of the small electrodes forming the flow path.

15. (Original) The thin film forming apparatus of claim 14, wherein each of the surfaces of the small electrodes forming the flow path is formed to be a curved surface convex toward a center of the flow path.

16. (Original) The thin film forming apparatus of claim 14, wherein the film transporting mechanism of each of the first small electrode and the second small electrode transports the protecting film to the surface of the small electrode forming the flow path, after the film transporting mechanism contacts the protecting film with at least a part of the gas supply unit.

17. (Original) The thin film forming apparatus of claim 1,

wherein the high frequency electric field is formed by superposing a first high frequency electric field by the first electrode and the second high frequency electric field by the second electrode;

a frequency $\omega 2$ of the second high frequency electric field is higher than a frequency $\omega 1$ of the first high frequency electric field; and

a relation among an electric field intensity V1 of the first high frequency electric field,

an electric field intensity V2 of the second high frequency electric field and a discharge start electric field intensity IV satisfies an inequality $V1 \geq IV > V2$ or an inequality $V1 > IV \geq V2$.

18. (Original) The thin film forming apparatus of claim 1, wherein the protecting film is made from polyester.

19. (Original) The thin film forming apparatus of claim 1, wherein a width of the protecting film is set to be wider than the discharge space.

20. (Withdrawn) The thin film forming apparatus of claim 10, wherein in the gas supply unit, a plurality of jet ports for jetting the gas to the discharge space are arranged along an axial direction of the small electrode;

a jet condition is capable of being set with respect to each of the plurality of jet ports;

the jet condition with respect to at least one or more jet ports provided at both ends among the plurality jet ports is set so as to jet gas without thin film formation gas including no material for thin film formation; and

the jet condition with respect to the jet port other than at least one or more jet ports provided at both ends is set so as to jet source gas including thin film formation gas.

21. (Withdrawn) The thin film forming apparatus of claim 14, wherein in the gas supply unit, the plurality of jet ports for jetting gas to the discharge space are arranged along an axial direction of the small electrode,

the thin film forming apparatus further comprising a gas suction unit for sucking the gas flowing out from the flow path, the gas suction unit being placed on at least one of sides of the small electrodes.

22. (Withdrawn) A thin film forming method comprising:

supplying gas comprising thin film formation gas from a gas supply unit to a discharge space which is formed by a first electrode and a second electrode of which discharge surfaces face each other;

activating the gas by generating a high frequency electric field in the discharge space;

forming a thin film on a substrate by exposing the substrate to the activated gas; and

transporting a protecting film for preventing at least one of the first electrode and the

second electrode from being exposed to the activated gas, in contact with at least one of the discharge surfaces of the first electrode and the second electrode, and with at least a part of a surface other than the discharge surface, which continues to the discharge surface.

23. (Withdrawn) The thin film forming method of claim 22, whrerin the protecting film is transported in contact with the discharge surface of the second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface.

24. (Withdrawn) The thin film forming method of claim 22, wherein the high frequency electric field in the discharge space is generated by the first electrode and the second electrode under an atmospheric pressure or a pressure near to the atmospheric pressure.

25. (Withdrawn) The thin film forming method of claim 23, wherein the protecting film is heated on an upper stream side in a transportation direction of the protecting film with respect to the discharge surface of the second electrode.

26. (Withdrawn) The thin film forming method of claim 25, wherein the protecting film is heated stepwise or continuously until the protecting film reaches the discharge surface.

27. (Withdrawn) The thin film forming method of claim 23, wherein the substrate is transported in contact with the discharge surface of the first electrode.

28. (Withdrawn) The thin film forming method of claim 27, wherein the substrate is transported in a state in which the substrate contacts the discharge surface of the first electrode, after the substrate is contacted with the surface other than the discharge surface, which continues to the discharge surface of the first electrode.

29. (Withdrawn) The thin film forming method of claim 23, wherein a continuous corner part between the discharge surface of the second electrode and the surface other than the discharge surface is shaped in an arc.

30. (Withdrawn) The thin film forming method of claim 23, wherein the discharge surface of the second electrode is formed to be a curved surface convex toward the discharge

surface of the first electrode.

31. (Withdrawn) The thin film forming method of claim 23,

wherein the second electrode is formed of a plurality of small electrodes; and

the protecting film is transported at each of the small electrodes.

32. (Withdrawn) The thin film forming method of claim 31,

wherein the small electrodes are fixed; and

the protecting films are transported while rubbing the protecting films against the surfaces of the small electrodes.

33. (Withdrawn) The thin film forming method of claim 31,

wherein the small electrodes are roller electrodes; and

the roller electrodes rotate according to the transportation of the protecting films.

34. (Withdrawn) The thin film forming method of claim 31,

wherein the first electrode is a roller electrode; and

the plurality of the small electrodes is rod electrodes disposed to be opposed to the peripheral surface of the roller electrode.

35. (Withdrawn) The thin film forming method of claim 31,

wherein the gas supply unit is disposed so as to supply the gas to the discharge space through a flow path formed as an interval between a first small electrode among the plurality of the small electrodes and a second small electrode adjoining to the first small electrode; and

the protecting films are transported so as to contact a surface of the small electrodes forming the flow path, with respect to each of the fist electrode and the second electrode.

36. (Withdrawn) The thin film forming method of claim 35, wherein each of the surfaces of the small electrodes forming the flow path is formed to be a curved surface convex toward a center of the flow path.

37. (Withdrawn) The thin film forming method of claim 35, wherein the protecting film is transported to the surface of the small electrode forming the flow path, after the protecting

film is contacted with at least a part of the gas supply unit, with respect to each of the first small electrode and the second small electrode.

38. (Withdrawn) The thin film forming method of claim 22,

wherein the high frequency electric field is formed by superposing a first high frequency electric field by the first electrode and the second high frequency electric field by the second electrode;

a frequency $\omega 2$ of the second high frequency electric field is higher than a frequency $\omega 1$ of the first high frequency electric field; and

a relation among an electric field intensity V1 of the first high frequency electric field, an electric field intensity V2 of the second high frequency electric field and a discharge start electric field intensity IV satisfies an inequality $V1 \geq IV > V2$ or an inequality $V1 > IV \geq V2$.

39. (Withdrawn) The thin film forming method of claim 22, wherein the protecting film is made from polyester.

40. (Withdrawn) The thin film forming method of claim 22, wherein a width of the protecting film is set to be wider than the discharge space.

41. (Withdrawn) The thin film forming method of claim 31, wherein in the gas supply unit, a plurality of jet ports for jetting the gas to the discharge space are arranged along an axial direction of the small electrode;

a jet condition is capable of being set with respect to each of the plurality of jet ports;

the jet condition with respect to at least one or more jet ports provided at both ends among the plurality jet ports is set so as to jet gas without thin film formation gas including no material for thin film formation; and

the jet condition with respect to the jet port other than at least one or more jet ports provided at both ends is set so as to jet source gas including thin film formation gas.

42. (Withdrawn) The thin film forming method of claim 35, wherein in the gas supply unit, the plurality of jet ports for jetting gas to the discharge space are arranged along an axial direction of the small electrode,